

CLAIMS

1. A secondary station (200) for use in a communication system comprising a primary station (100) and a secondary station (200), the
5 secondary station (200) comprising:
receiver means (240) for receiving a first signal transmitted by the primary station (100);
measurement means (250) for measuring a first characteristic of the received first signal;
10 processing means (260) for deriving power control commands from the measured first characteristic,
transmitter means (210) for transmitting control information comprising at least the power control commands to the primary station (100);
further comprising control means (270) responsive to the primary station (100)
15 failing to adjust its transmit power in compliance with the transmitted power control commands for modifying a parameter of the control information transmitted to the primary station (100).

2. A secondary station (200) as claimed in claim 1, wherein the
20 control means (270) is adapted to modify the parameter of the control information transmitted to the primary station (100) by generating an indication of a power step size for transmission to the primary station (100) to use when adjusting its transmit power.

- 25 3. A secondary station (200) as claimed in claim 1,
wherein the receiver means (240) is adapted to receive a second signal transmitted by the primary station (100);
wherein the measurement means (250) is adapted to measure a second characteristic of the received second signal;
30 wherein the processing means (260) is adapted to derive channel quality reports from the measured second characteristic,

wherein the transmitter means (210) is adapted to transmit the channel quality reports to the primary station (100) at a predetermined rate; and
wherein the control means (270) is adapted to modify the parameter of the control information transmitted to the primary station (100) by causing the
5 channel quality reports to be transmitted at a rate higher than the predetermined rate.

4. A secondary station (200) as claimed in claim 1,
wherein the receiver means (210) is adapted to receive a second signal
10 transmitted by the primary station (100);
wherein the measurement means (250) is adapted to measure a second characteristic of the received second signal;
wherein the processing means (260) is adapted to derive channel quality reports from the measured second characteristic, whereby each of the channel
15 quality reports is derived by averaging a function of the measured second characteristic over a predetermined time period,
wherein the transmitter means (210) is adapted to transmit the channel quality reports to the primary station (100); and
wherein the control means (270) is adapted to modify the parameter of the
20 control information transmitted to the primary station (100) by causing the averaging to be performed over a time period shorter than the predetermined time period.

5. A secondary station (200) as claimed in any of claims 1 to 4,
25 wherein the control means (270) is adapted to detect failure of the primary station (100) to adjust its transmit power in compliance with the transmitted power control commands.

6. A secondary station (200) as claimed in claim 5, wherein the
30 control means (270) is adapted to detect failure of the primary station (100) to adjust its transmit power in compliance with the transmitted power control commands by determining the signal-to-interference ratio (SIR) of the received

first signal and by detecting when a function of the SIR fulfils a predetermined criterion.

7. A secondary station (200) as claimed in any of claims 1 to 4,
5 wherein the control means (270) is adapted to receive an indication of the failure of the primary station (100) to adjust its transmit power in compliance with the transmitted power control commands.

8. A secondary station (200) as claimed in any of claims 1 to 4,
10 wherein the control means (270) is adapted to store an indication of one or more predetermined times at which the primary station (100) may fail to adjust its transmit power in compliance with the transmitted power control commands and wherein the control means (270) is responsive to the occurrence of the one or more predetermined times for modifying the parameter of the control 15 information transmitted to the primary station (100).

9. A communication system (50) comprising a secondary station (200) as claimed in any of claims 1 to 8 and a primary station (100), the primary station (100) comprising:

20 transmitter means (110) for transmitting a first signal;
receiver means (140) for receiving power control commands;
control means (150) for adjusting the transmit power of the first signal in compliance with the received power control commands provided that the adjustment is within the contemporaneous capability of the primary station
25 (100); and
wherein the primary station control means (150) is adapted to adapt a characteristic of a transmission in response to receiving the modified control information.

30 10. A communication system (50) as claimed in claim 10, wherein the primary station control means (150) is adapted to generate an indication

for transmission in response to failing to adjust the transmit power of the first signal in compliance with the received power control commands.

11. A primary station (100) for use in a communication system (50)
5 comprising a primary station (100) and a secondary station (200), the primary station (100) comprising:
transmitter means (110) for transmitting a first signal;
receiver means (140) for receiving power control commands;
control means (150) for adjusting the transmit power of the first signal in
10 compliance with the received power control commands provided that the adjustment is within the contemporaneous capability of the primary station (100);
wherein the control means (150) is adapted to generate an indication for transmission in response to failing to adjust the transmit power of the first
15 signal in compliance with the received power control commands.

12. A method of operating a communication system (50) comprising a primary station (100) and a secondary station (200), the method comprising:
transmitting a first signal from the primary station (100);
20 at the secondary station (200),
receiving the first signal;
while receiving the first signal, measuring a first characteristic of the received first signal, deriving power control commands from the measured first characteristic, and transmitting control information comprising at least the
25 power control commands;
at the primary station (100),
receiving the power control commands;
adjusting the transmit power of the first signal in compliance with the received power control commands provided that the adjustment is within the
30 contemporaneous capability of the primary station (100);
further comprising,

at the secondary station (200), in response to the primary station (100) failing to adjusting the transmit power in compliance with the received power control commands, modifying a parameter of the control information transmitted to the primary station (100), and

- 5 at the primary station (100), in response to receiving the modified control information, adapting a characteristic of a transmission.

13. A method as claimed in claim 12, wherein modifying the parameter of the control information transmitted to the primary station (100) comprises transmitting an indication of a power step size for use by the primary station (100) when adjusting its transmit power.

14. A method as claimed in claim 12, further comprising:

transmitting a second signal from the primary station (100);

- 15 at the secondary station (200),

receiving the second signal;

while receiving the second signal, measuring a second characteristic of the received second signal, deriving channel quality reports from the measured second characteristic, and transmitting the channel quality reports at a

- 20 predetermined rate;

at the primary station (100),

receiving the channel quality reports;

determining at least one parameter of the first signal or another signal in response to the channel quality reports;

- 25 wherein modifying the parameter of the control information transmitted to the primary station (100) comprises transmitting the channel quality reports at a rate higher than the predetermined rate.

15. A method as claimed in claim 12, further comprising:

- 30 transmitting a second signal from the primary station (100);

at the secondary station (200),

receiving the second signal;

while receiving the second signal, measuring a second characteristic of the received second signal, deriving channel quality reports from the measured second characteristic whereby each of the channel quality reports is derived by averaging a function of the measured second characteristic over a 5 predetermined time period, and transmitting the channel quality reports; at the primary station (100),

- receiving the channel quality reports;
- determining at least one parameter of the first signal or another signal in response to the channel quality reports;
- 10 wherein modifying the parameter of the control information transmitted to the primary station (100) comprises averaging the function of the measured characteristic over a time period shorter than the predetermined time period.

16. A method as claimed in any of claims 12 to 15, comprising 15 detecting at the secondary station (200) the failure of the primary station (100) to adjust the transmit power in compliance with the received power control commands.

17. A method as claimed in claim 16, wherein detecting the failure 20 comprises determining the signal-to-interference ratio (SIR) of the received first signal and detecting when a function of the SIR fulfils a predetermined criterion.

18. A method as claimed in any of claims 12 to 15, comprising 25 detecting at the primary station (100) the failure of the primary station (100) to adjust the transmit power in compliance with the received power control commands and, in response to detecting the failure, transmitting to the secondary station (200) an indication of the failure.

30 19. A method as claimed in any of claims 12 to 15, wherein times at which the primary station (100) fails to adjust the transmit power in compliance with the received power control commands are predetermined.